

List of Madison Project Films from Appendix B of the a report to NSF report													
Film #	Title	Video-tape #	Grade level	I	II	III	IV	V	VI	Teacher	Content	Math Area	Available
1	(not yet titled)	VT 34, part 2	Kindergarten	x	x					Doris Machtinger	Place-value numerals via physical materials	Counting, place-value	
2	Teaching Big Ideas in Mathematics to First Grade Pupils -- Lesson 1	VT 71	Grade 1	x	x	x	x			Beryl S. Cochran	Counting, addition of whole numbers, introduction to the number line, plotting points in first quadrant in Cartesian coordinates, geoborards, place value numerals via physical materials.	Counting, +, -, X, /, , , place-value	
3	Teaching Big Ideas in Mathematics to First Grade Pupils -- Lesson 2	VT 72	Grade 1	x	x	x	x			Beryl S. Cochran	Work with geoboards; place-value numerals via concrete aterials; plotting points in the first quadrant in Cartesian coordinates.	Counting, +, -, X, /, , , place-value	
4	Teaching Big Ideas in Mathematics to First Grade Pupils -- Lesson 3	VT 73	Grade 1	x						Katherine Vaughn	The concept of height and the process of measuring height.		
5	Teaching Big Ideas in Mathematics to First Grade Pupils -- Lesson 4	VT 74	Grade 1	x						Katherine Vaughn	Continuation of lesson begun on VT 73.		
6	Teaching Big Ideas in Mathematics to First Grade Pupils -- Lesson 5	VT 75	Grade 1	x		x	x			Beryl S. Cochran	Place-value numerals via concrete materials; plotting points in the first quadrant in Cartesian coordinates.	place-value	
7	Addition and Multiplication Using Plastic Washers	VT 67	Grades 1 & 2	x						R. B. Davis	Addition and multiplication using plastic washers.	+ , - , X, /	
8	Multiplication Using Dots	VT 67	Grades 1 & 2	x						R. B. Davis	Multiplication using arrays of dots marked on paper.	+ , - , X, /	
9	Geometry via Concrete Objects	VT 76, Part 1	Grade 2	x		x	x			Beryl S. Cochran	Geoboards, E.S.S.'s "geoblocks," and E.S.S.'s "colored polygonal blocks."	fractions	
10	Gluing and Stamping	VT 76, Part 2	Grade 2	x		x	x			Beryl S. Cochran	Futher work with blocks, leading to concepts of volume, area, and similarity.		
11	Multiplication Arrays and Other Topics	VT 86, Part I	Grade 2	x						Beryl S. Cochran	Use of rectangular arrays in multiplication; work with Cuisenaire rods; work with number line, including fractions.	" + , - , X, / , , fractions	
12	Using Geoboards with Second Graders	VT 77, Part II	Grade 2	x		x	x			Katherine Vaughn	Mainly the concept of area, using geoboards.	fractions	
13	An Introduction t Geometry via Nailboards	VT 68	Grades 4, 5, and 6	x		x	x			R. B. Davis	The concept of area, including informal heuristic demonstrations.		
14	A Sixth-Grade Lesson on Place-Value Numerals	VT 78	Grade 6	x						R. B. Davis	Place-value numerals using concrete materials (including non decimal	place-value	
15	Measurement via Inequalities	VT 79	Grades 5 & 6	x	x	x	x			R. B. Davis	Measurement of length using arbitrary units (with fractional sub-units also available,) obtaining inequalities as results.		
16	The Classroom Divided into Small Groups: Counting, Volume, and Rational Approximations	VT 82	Grades 5 & 6	x	x	x	x			R. B. Davis	Counting large numbers; the concept of volume; and finding rational approximations to the square root of 2.		
17	The Concepts of Volume and Area	VT 85	Grades 5 & 6	x	x	x	x			R. B. Davis	This lesson shows children's cognitive and perception difficulties I coping with the concepts of volume and area when physical materials are involved.		

18	The Classroom Divided into Small Groups: Volume and Area	VT 88	Grades 5 & 6	x	x	x	x			R. B. Davis	Work with physical materials related to the concepts of volume and area.		
19	Small-group Instruction: Signed Numbers, Rational Approximations, and Motion Geometry	VT 84	Grade 6	x	x	x	x	x		R. B. Davis	Work with the arithmetic of signed numbers, rational approximations to the square root of two, and motion geometry leading to binary operation tables for groups.		
20	Small-group Instruction: Committee Report on Signed Numbers	VT 87, Part I	Grade 6	x		x	x			R. B. Davis	The arithmetic of signed numbers.	fractions	
21	Small-group Instruction: Committee Report on Rational Approximations	VT 87, Part II	Grade 6	x	x	x	x			R. B. Davis	Rational approximations to the square root of two.		
22	Small-group Instruction: Committee Report on Motion Geometry	VT 87, Part III	Grade 6	x				x		R. B. Davis	Binary operation tables obtained from notions of symmetric plane figures.		
23	A Wide-Angle View of a Math Lab: A New Role for Teachers?	VT 100	Grade 6	x	x	x	x			Gerald B. Glynn	This film merely shows the over-all rearrangement of a classroom to make it suitable for use as a "math lab."		
24	Math Labs for the Intermediate Grades -- A Discussion	VT 101	not a lesson	x		x	x						
25	Teachers Studying Geoboard Geometry	VT 81	The "students" are elementary school teachers.	x		x	x			Irvin Vance	The use of geoboards in constructing informal heuristic demonstrations dealing with the area of plane figures.	Teacher Education	
26	A Lesson with Second Graders	VT 4	Grade 2			x	x			R. B. Davis	Introduction to the concepts of signed numbers, the number line, open sentences, and Cartesian coordinates.		
27	Pebbles in the Bag	Excerpt from film #26									Signed numbers.		
28	Experience with Fractions Lesson I	VT 14	Grade 2		x	x	x			R. B. Davis	Experience with the informal idea of fractional parts of discrete collections of physical objects (actually, "kindergarten blocks").	fractions	
29	Experience with Fractions Lesson II	VT 21	Grade 2		x	x	x			R. B. Davis	Sequel to film #28	fractions	
30	The Number Line and Other Topics	VT 22	Grade 2		x	x	x			Beryl S. Cochran	Using the number line to aid in solving equations, experience with fractions, the concept of identity (i.e., universally-true open sentences), Cartesian coordinates.	fractions	
31	Open Sentences and the Number Line	Excerpt from film #30				x	x						
32	Experience with Fractions, Number Line, and String	Excerpt from film #30				x	x					fractions	
33	Experience with Identities	Excerpt from film #30				x	x						
34	Tic-Tac-Toe in Four Quadrants	Excerpt from film #30				x	x						
35	The Operations of Arithmetic Using Concrete Materials	VT 38	Grade 2		x	x	x			Beryl S. Cochran	Experience sharing, distributing, combining, and removing discrete physical objects.	$+, -, \times, /$	
36	Subtraction and Division	Excerpt from film #35.			x	x	x					$+, -, \times, /$	

37	Graphs and Truth Sets	VT 42	Grade 2			x	x		Katherine Vaughn	Open sentences and Cartesian coordinates		
38	Crossed Number Lines	Excerpt from film #37				x	x					
39	The Graph of $[square] + \Delta = 8$	Excerpt from film #37				x	x					
40	The "Rule for Substitution"	Excerpt from film #37				x	x					
41	Operations of Arithmetic	VT 58	Grade 1			x	x		Beryl S. Cochran	Experiences with arithmetic using concrete materials.		
42	Excerpt from "Operations of Arithmetic"	Excerpt from film #41				x	x					
43	First Lesson	VT A-1	Ungraded with grades 3-7			x	x		R. B. Davis	Introduction of the concepts of variables, open sentences, signed numbers, and Cartesian coordinates.		
44	Discovery	Made from part of VT A-1				x	x		Includes narration	Discussion of part of VT A-1.		
45	Sequencing and Elementary Ideas	Made from part of VT A-1				x	x		Includes narration	Discussion of part of VT A-1.		
46	Excerpt on True, False, and Open Sentences	Excerpt from film #43				x	x					
47	Second Lesson	VT A-2	Ungraded with grades 3-7			x	x		R. B. Davis	Linear graphs and identities (i.e., universally-true open sentences).		
48	Introduction to Identities	Excerpt from film #47				x	x					
49	Balance Pictures	VT 8	Grade 4			x	x		R. B. Davis	Hueristic approach to solving linear equations.		
50	Guess My Rule	VT 12	Grade 4			x	x		R. B. Davis	Given a table of ordered pairs, find a corresponding algebraic formula.		
51	Dividing Fractions	VT 15, Part 1	Grade 4			x	x		R. B. Davis	Division of fractions	fractions	
52	Excerpt from "Dividing Fractions"	Excerpt from #51				x	x				fractions	
53	Experience with Area	VT 15, Part 2	Grade 4			x	x		R. B. Davis	Introduction of the concept of area.		
54	Experience with Estimating and Measuring Angles	VT 16	Grade 4			x	x		Betty Bjork	Experience with estimating and measuring angles.		
55	Experience with Angles	VT 29, Part 2	Grade 5			x	x		R. B. Davis	The concept of angle as a measure of rotation; use of physical materials such as wheels, etc.		
56	Units of Measurement: Distance and Angles	VT 49, Part 2	Grades 6 & 7 (mixed)			x	x		R. B. Davis	Selection of appropriate physical objects to serve as concrete "units" for measuring distance and angles.		
57	Some Aspects of Measurement	Excerpt from film #56				x	x					
58	Weights and Springs	VT 18, Part 2	Grade 6			x	x		R. B. Davis	A study of elasticity and the recognition of linear functions.		
59	Analysis of Classroom Behavior	Made from film #58				x	x			Made from film #58, in order to emphasize the more effective use of films showing classroom lessons		
60	Experience with Linear Graphs	VT 23, Part 1	Grade 4			x	x		R. B. Davis	Graphs of linear functions.		
61	Kye's Arithmetic	VT 23, Part 2	Grade 4		x	x	x		R. B. Davis	Algorithms for arithmetic using negative digits.	,place-value	
62	Postman Stories	VT 45	Grades 6 & 7 (mixed)			x	x		R. B. Davis	The arithmetic of signed numbers, and the graph of a circle.		
63	Circle and Parabola	VT 24	Grade 6			x	x		R. B. Davis	Graphic conic sections by plotting points.		
64	Graphing a Parabola	Excerpt from film #63				x	x					

65	A More Formal Approach to Variables	VT 28, Part 1	Grade 4			x	x			R. B. Davis	Consideration of the replacement set for a variable.		
66	Guessing Functions	VT 49, Part 1	Grades 6 & 7 (mixed)			x	x			R. B. Davis	Given a table of ordered pairs, find a corresponding algebraic formula.		
67	A Week of Mathematical Exploration -- Monday	VT 60	Grades 4 & 5 (mixed)			x	x			R. B. Davis	Initial introduction to the arithmetic of signed numbers, variables, open sentences, and plotting points in Cartesian coordinates.		
68	A Week of Mathematical Exploration -- Tuesday	VT 61	Grades 4 & 5 (mixed)			x	x			R. B. Davis	Arithmetic of signed numbers, introduction to the concept of functions.		
69	Excerpt on "Making up a Rule"	Excerpt from film #68				x	x						
70	A Week of Mathematical Exploration -- Wednesday	VT 62	Grades 4 & 5 (mixed)			x	x			R. B. Davis	Functions.		
71	A Week of Mathematical Exploration -- Thursday	VT 63	Grades 4 & 5 (mixed)			x	x			R. B. Davis	Continuation of topics above.		
72	A Week of Mathematical Exploration -- Friday	VT 64	Grades 4 & 5 (mixed)			x	x			R. B. Davis	Continuation of topics above.		
73	Introduction to Postman Stories	VT	Grades 4, 5 & 6 (mixed)			x	x			Katharine Kharas	Introction to the arithmetic of signed numbers.		
74	Linear Measurement	VT 80	Grade 6			x	x			R. B. Davis	Linear measurement using inequalities.		
75	Average and Variance	VT 17	Grade 6			x	x			R. B. Davis	Statistical attributes of measurement variability.		
76	Clues	VT 13, Part 1	Grade 6					x		R. B. Davis	Implication, contradiction, and uniqueness.		
77	Clues -- Audience Participation Version	Edited version of film #76						x					
78	Matricies	VT 7, Part II	Grades 5 & 6 (mixed)					x		R. B. Davis	Exploration of the structure of the system of 2-by-2 matrices.	matrices	
79	Solving Equations with Matrices	VT 13, Part II	Grade 6					x		R. B. Davis	Using an isomorphism between rational numbers and a subset of the set of 2-by-2 matrices in order to solve the equation $x^2 = -4$.	matrices	
80	Accumulating a List of Identities	VT 18, Part 1	Grade 6					x		R. B. Davis	Identities (i.e., universally-true open sentences).	identities	
81	Debbie's List	VT 28, Part 2	Grade 4					x		R. B. Davis	The distributive law expressed as an identity.	identities	
82	"Super-Identities"	VT 59	Grade 5					x		Katharine Kharas	Introduction of additional variables into identities.	identities	
83	Introduction to Derivation	VT 9, first part of part 1	Grades 5 & 6 (mixed)					x		R. B. Davis	The concept of implication applied to identities.	identities	
84	Axioms and Theorems	VT 10	Grade 6					x		R. B. Davis	Establishing some identities as theorems proved by using other identities.	identities	
85	Six Excerpts on Identities	Excerpts from films #80, 82, 83, 84, and 106						x			This topic is also dealt with at the ninth grade level in films #104, 105, 106, 107, 115 and 116.	identities	
86	The Area of a Parallelogram	VT 9, Part 1	Grades 5 & 6 (mixed)					x		R. B. Davis	Informal heuristic demonstration of the formula for the area of a parallelogram.	geometry	
87	The Study of Functions -- Linear, Quadratic, and Exponential	VT 66	Grades 4, 5 & 6 (mixed)					x		R. B. Davis	Finite difference methods for distinguishing between linear, quadratic, and exponential functions.	classification	

110	Quadratic Equations	VT 43	Grade 9							x	R. B. Davis	Derivation of the quadratic formula.	derivative	
111	Introduction to Infinite Sequences	VT 44	Grade 9							x	R. B. Davis	Monotonic sequences related to the square root of 2.		
112	What is Convergences?	VT 46	Grade 9							x	R. B. Davis	This continues the study of infinite sequences.		
113	Bounded Monotonic Sequences	VT 47	Grade 9							x	R. B. Davis	The study of bounded monotonic sequeces.		
114	Introduction to the Complex Plane	VT 48	Grade 9							x	R. B. Davis	Matrix names are assigned to points in E sub 2.		
115	A Language for Algebra	VT 53	Grade 9							x	R. B. Davis	Logic used as a language for the discussion of axiomatic algebra.	logic	
116	Algebraic systems: Intuition and Formal Descriptions	VT 55	Grade 9							x	R. B. Davis	Consideration of the real number system, of the system of 2 X 2 matrices, and of Boolean algebra.	logic	
117	A Lesson in Euclidean Geometry	VT 39 & 40	Grade 9							x	Elizabeth Herbert	Proofs of theorems in Euclidean geometry.		
I	Lessons emphasizing small group work and individualized instruction, grades K-8.													
II	Lessons intended to improve the students' understanding of topics in traditional arithmetic, grades K-8.													
III	Lessons concerned with creating a "bridge" or "foundation" for unifying arithmetic, algebra, and geometry in grades K-8.													
IV	Lessons concerned with creating a "bridge" or "foundation" for relating mathematics to science in grades K-8.													
V	Lessons intended to give more capable students a head start on high school and college mathematics.													
VI	Lessons from the Ninth-Grade Course													